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IT is a great pleasure for me to be here and a great honour. You are a most important branch of the tree of the art and science of healing which we call medicine. Surely the best healing is prevention. And my only criticism of you is that you do not exercise an influence in Canadian organized medicine commensurate with your importance. Time will remedy that lack, for you represent medicine with a vision of the future.

Your branch of the tree has several grafts, for you advance with advancing knowledge, and you integrate into your growth and use the special knowledge of other professions. Besides doctors and nurses with special training, you have dentists, nutritionists, psychologists, social workers, engineers, etc. These grafts have added substance to the tree, and "the leaves of the tree are for the healing of the people".

You represent public health, and I, clinical medicine. We represent a dichotomy which has occurred in medicine. I am older. You are the offspring and I am the parent. And sometimes I wonder if my cerebral vessels are not getting a bit hard, and if I am not a little bit afraid of what lies ahead. While you look forward to the future—a future in which, if you should reach your ideal, then indeed I shall be done, unneeded and unwanted, and I shall sleep with my fathers. Your contact is with the community, your emphasis is on health, your method prevention, your view is long, your pace steady and unhurried. My contact is with the individual, personal and intimate, which tends to make me an individualist. My emphasis tends to be on disease, the diagnosis and treatment of the single episode. My view is myopic. In my hurried and urgent pace I tend to neglect prevention until reminded by you.

Together we represent modern medicine. If we are wise, we will see that

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we are "a part of all that we have met", partly a product of our times. We are not a thing apart, but a part of contemporary society.

The development and progress of medicine should not be viewed as an isolated subject. Its concepts and practices grow out of the intellectual, social and cultural soil in which it finds itself. In every land and in every age it has advanced or regressed with man's thinking, not passively, but influenced by and influencing the intellectual, social and spiritual environment of the time and place.

In the earliest written records, medicine comes to us out of the misty East of antiquity, laden with all the superstition and mystery of that early culture, but having the saving grace of bodily cleanliness and tinctured at least with human pity which is the real origin of medicine. The record next appears in early Greece, and here again reflects the working of that marvellous thinking apparatus—the Greek mind—which is itself a greater mystery than Egypt ever knew. The Greek mind was the first "to lift the veil of mysterious nature" and "look on Nature's naked loveliness" unafraid and unashamed, and set in motion the forces which have made our modern civilization. Here in the golden age of Pericles, which gave so much to our civilization, medicine threw off its shackles of superstition and seemed to stand at the threshold of its modern temple.

We are told that in every field of Greek thought of the time one finds a clear common sense and concern for the welfare of humanity. Gilbert Murray states that the idea of service to the community was more deeply rooted in the early Greeks than even in our day. The question they asked about each writer and teacher was "Does he help to make better men—to make life better?" The aim was to be helpful. He quotes a writer of the fifth century B.C. as saying "That which benefits human life is God".

Hippocrates, who represents medicine of the period, speaks with the same intellectual, social and spiritual accent. "Where there is love of humanity, there will be love of the healing Art." "The welfare of the patient comes first." Disease is not a caprice of the gods, but a process of nature, and nature is true to its laws. Observation and the collection of facts, the outlook of modern science, took the place of wild speculation. The result of this outlook was a common-sense treatment which has a familiar sound—bathing, cleanliness, fresh air, diet, rest, and exercise. The recognition of the natural healing power of the body first noted by Hippocrates gave rise to the expectant form of treatment which we moderns should not neglect.

Medicine reflected the soil in which it grew. It continued true to its nature when Alexander the Great set out to conquer the world, and the school of Alexandria became heir to the Greek mind. Then the Roman legions took over where Alexander had left off and the glory that was Greece faded.

Because of the change of the soil in which it grew, medicine gained much and lost much in the Roman period. The Roman mind had a genius for organization rather than for scientific investigation and ethics, but the note of humanity of the earlier Greeks was lacking until later restored by Christianity. Cleanliness, sanitation and good drainage were enforced by law. Rome was early provided with underground sewers and their wonderful aqueducts

provided plenty of good water for drinking and bathing, and if the Roman physicians added little to clinical medicine, yet the genius of the people caused great advances in public health.

In looking back, it would seem that medicine, reflecting the genius and culture of the early Greek and Roman people, had over 2,000 years ago built a solid foundation and was proceeding to erect the first storey of the temple, then suddenly knocked off work, and lived in the cellar and fouled it.

Whatever the causes of the Dark Ages, there was a progressive deterioration of man's mind, and the medicine of that period was no better and no worse than the other products of his thinking. In the Middle Ages the cleanliness and hygiene of an earlier day was forgotten and man became a filthy, dirty animal. The hygiene and health of the medieval towns was far below that of the Roman period. This lack of cleanliness persisted until 150 years ago, and was, of course, the main cause of the terrible epidemics which scourged mankind and added to the disorganization of society. The medicine of the period reflected the soil in which it grew.

In the fifteenth century, the soil began to change. Investigation started once more, represented in medicine by Harvey. In clinical medicine others like Sydenham in England took up where Hippocrates had left off, and Boyle brought chemistry out from the mystic shades of alchemy. Improvement in hygienic conditions, especially in the towns, began in the eighteenth century, helped on by the Industrial Revolution with its great social and economic changes. Thinkers and writers like Addison and Steele in England spread the gospel of the new look and Jeremy Bentham, the great English political and social thinker, propounded his utilitarian philosophy with its "greatest good to the greatest number", giving impetus to the great humanitarian movement which has carried over to, and increased in our century. "All factors which influence the health of the country must be the concern of the legislature," insisted Bentham. Private individual efforts in hygiene were later followed by governmental action and medicine spurred on by an awakening social consciousness again began to face its social implications.

By our standards perhaps results came slowly, but the leaven was working and by the nineteenth century, public opinion showed its thinking in the outcry over the lack of medical care for the soldiers in the Crimean War. This was followed by the revolution in hospital care and nursing associated with the name of Florence Nightingale, which made our modern hospitals, and without which modern medicine would not have been possible.

In the enriched soil science began to flourish. Virchow gave us our cellular pathology. Pasteur and Koch showed us the germs of infectious diseases and laid the basis of prevention by changing man's internal and external environment. Lister, using Pasteur's work, started modern surgery on its wonderful advance. Psychology, biology, chemistry, biochemistry, physics and sociology have all added their quotas to modern medicine.

Time does not permit a discussion of the influence of religion, which is great, but modern medicine remains humanitarian and speaks the language of science with a Galilean accent. Medicine can never be a pure science, but is rather an integral part of man's social development.

It is interesting and instructive to recall to mind an early people of 2,500 years ago, with their cult of reason and beauty, their ideal of a clean healthy mind in a clean healthy body being reflected in the medicine of their day. Then, after 1,000 years, when we would naturally expect to find great progress, we find instead the corruptible human body standing in the way of man's ideal:—

"Such harmony is in immortal souls
But whilst this muddy vesture of decay
Doth grossly close it in we cannot hear it"

and the hygiene and public health of the time corresponded to that outlook. Then after another thousand years man recaptured the spirit of an earlier day and Robert Browning could write:—

"Let us not always say,
'Spite of this flesh today
I strove, made head, gained ground upon the whole'
As the bird wings and sings,
Let us cry, 'all good things are ours, nor soul helps flesh more,
now, than flesh helps soul!'"

—and modern hygiene and public health began.

The achievement of modern medicine is stupendous. A brief study of vital statistics reveals a dramatic story. Life expectancy has doubled in 150 years, but statistics, though graphic, tell only a part of the story. Clinical medicine and surgery supply much of the drama, but preventive medicine has saved more lives and prevented more suffering by far than all the rest of medical advances combined.

Preventive medicine is coming into its own. There has been a great change in outlook. When I graduated, public health was little ahead of the Roman period; immunology was represented by vaccination against small pox, the medico-social field was not thought of. Governmental health activities were primitive. More or less suddenly government has adopted Jeremy Bentham's utilitarian philosophy, and the growth of public health has been tremendous during the last 40 years. Public health has been overlapping the field of private practice of clinical medicine. Moreover, it is cultivating new fields, such as nutrition and mental health, which private practice, because of its peculiar nature has neglected. The end of this extension is not in sight.

We, in medicine, can take some justifiable pride in the progress of our times. But if we are honest we will see that the credit is not all ours. We are growing in the soil of our times, adding, of course, our contribution to that soil. The great humanitarian movement of last century with its growing social outlook has carried on and has greatly expanded in our contemporary free society, and finds its reflection in our legislatures. Sometimes medicine finds itself, like government, leading from the rear under the pressure of outside social forces. The growth of the many lay voluntary health societies which are a sign of our broad social development, not only spurs us on, but they share in the leadership. Yet, the leadership of our profession has been outstanding.

I have tried to look at the past in order to see the future. What of the

future? I do not need to remind you of the changes in the age composition of our people and the change in the leading causes of death and disability. Both preventive and clinical medicine face new problems, yet must not neglect the old problems now almost solved. We must properly orient ourselves to the thought and spirit of our time. We must enlarge our concept of what constitutes a good medical service. The social factor in health and disease is now obvious. We in clinical medicine must recognize that factor in forming our clinical judgements, for you in public health it will mean action. Medicine must become more and more socialized, for health touches life in all its aspects. Many of us dislike the term *socialized medicine*; we are afraid of it. It is so emotionally laden that we do not give it a proper meaning, restricting it to mean one method of supplying medical service to all the people. That is the only method possible for you, but not for us. Yet, we see that the present method of providing our service must be changed and think that insurance holds the answer. I have stated that you have been encroaching more and more on our field of diagnosis and treatment. I believe you will have to continue your encroachments for a time. The pattern of specialism seen in every field of endeavour is seen also in medicine. This is a necessary development and it may be that in the future you will have to take over such highly specialized fields, but I do not believe that you will soon in this country absorb the fields of general medicine, general surgery, pediatrics and obstetrics which is the realm of the family doctor, where the intimate doctor-patient relationship is of such value to the patient whose welfare must always have first place. On the other hand, the family doctor must honestly remember that the patient's welfare *does* come first, and that he is a party to that doctor-patient relationship which has its basis in the realm of the human spirit and has no place for commercialism. We should be as innocent of commercialism as you are, who have set us a good example in this respect.

Co-operation is a mark of our times. You and I must co-operate more closely, fostering a deeper interest and appreciation of each other's work. As you go about your areas, make friends with the local doctors. We can learn and profit much from each other. We in clinical medicine must give prevention, preservation of good health, and rehabilitation a greater place in our thinking. Our medical curriculum should reflect this thinking, and, besides providing specific courses, prevention should be taught as an integral part of clinical medicine.

Finally, a mark of our times is the great spread of education. People want to know. People are intensely interested in health and want instruction. We have come to the time when we need the intelligent informed co-operation of the public for further progress. Our opportunities for teaching are many. We should take on the function of health teachers which our age demands and needs.

And so I wish you success in your deliberations this week, and Godspeed in your mission as you go into the future. The past warns us that in that future, progress is not inevitable, yet I believe that there are good grounds for hope and that the art and science of healing will continue to influence and reflect man's intellectual and social development.

The Place of Medical Co-operatives in a Complete Health Plan¹

ALEXANDER LAIDLAW, M.A., B.Paed.²

AT the outset I should like to congratulate all those who are responsible for the organization and work of this Medical Care Conference. I have not attended previous meetings but I am sure that your discussions and findings must be of great value to those who are concerned in the problem of medical care, which, you will readily agree, is one of the most urgent social problems of our time. Just now, when important policies on health programs are being formulated in this country, it is the democratic and sensible thing for medical and hospital personnel, government officials, and representatives of consumers to get together to exchange ideas and viewpoints. We Canadians have a reputation for sanity in our social evolution, and I cannot imagine a better field in which to exercise that sanity than in the development of a sound health plan in which all the people of this country can take some pride. For this reason your conference is, therefore, a great work in citizenship.

At the beginning I should also make it clear that I do not officially represent the co-operative movement, either in Canada or the Maritimes, at this conference. My views here are personal, but are also those of the department which I represent. I can also say that they are the views of many people in co-operative work with whom I associate in all parts of this country.

Actually, medical care co-operatives are not a strong part of the co-operative movement in Canada, except in one province. It is true that there are quite a number of group health plans operated co-operatively in almost every province, but we do not have anything comparable to the development in the United States, mainly, I am sure, because co-op members, like a great many other Canadians, have their minds set on a broader plan with universal application.

A problem of distribution

We are concerned here with a problem of *distribution*, the distribution of medical services of all kinds. On the one hand we have the vast store of medical knowledge and skills, costly equipment and facilities, modern research and wonderful new drugs, but on the other hand the great problem of how to distribute them, how to put them to use, how to make them benefit as great a number of people as possible. Indeed, this problem is parallel to that in the material field: how best to distribute the goods which we are capable of producing? Future historians may well look upon this as the age in which men struggled to find a way to consume what they produced. So

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perhaps we should look upon this as part of the greater problem of distributing goods and services in the best possible way to meet human needs.

We have to recognize that this problem exists. If we assume that the answer has already been found, then we can make no progress and the present situation can only become worse. For this reason, I am a little disturbed by a heading in a pamphlet entitled "Financing Health Services in Canada", published by the commercial insurance companies in 1954, which has been widely circulated. The heading to which I refer reads: "The adequacy of existing insurance and government services." The word "adequacy" suggests that we have no need to work out a better system. But we know that there are great sectors of the Canadian people who assuredly do not have adequate health services. Can we not, then, begin with the assumption that this great problem of distribution exists? And, moreover, that we are all eager to find the best possible solution?

Health is a public concern

In days gone by, medical care was considered a purely personal problem, but the last fifty years have brought about a great change from personal to public concern in health and medical matters. This is as it should be, for indeed, there can be no such thing as "private" health; it is all "public" health. Yes, all health, whether good or bad, is public. In no other field of human affairs can it be more truly said that we are "our brother's keeper"; and we should be, for our own good as well as his. The recognition of this truth is reflected today in the widespread discussion of medical care plans and the interest shown by various groups of citizens in developing the proper organization of medical services.

A time of transition

We are now in a period of transition in medical care, especially in Canada. The next five years will no doubt bring great changes, for already the foundation program of a national health plan has been drawn up by the federal government and offered to the provinces. A great deal of study and research has gone into the problem, valuable reports have been issued within the past few years by the Department of Health and Welfare, and by numerous other agencies too, and we now have on hand a wealth of facts and information on which to base future programs. We know, for example, that it costs about \$50.00 per person annually in Canada (1953) for all the health services which we are now using. A recent bulletin of the Canadian Welfare Council, entitled "Health Insurance—What are the Issues?", gives this breakdown as to the various kinds of services:

| | <i>Per capita cost</i> | <i>Percentage</i> |
|----------------------------|------------------------|-------------------|
| Hospital care | \$27.25 | 54.0% |
| Medical care | 12.25 | 24.0 |
| Dental care | 4.90 | 10.0 |
| Drugs | 4.40 | 9.0 |
| Nursing and other services | 1.70 | 3.0 |
| | — | |
| | 50.50 | 100.0 |

These services were paid for as follows:

| | <i>Per capita</i> | <i>Percentage</i> |
|------------------------------|-------------------|-------------------|
| By patients directly | \$25.45 | 50.0% |
| By public funds | 16.45 | 33.0 |
| By voluntary insurance plans | 8.60 | 17.0 |
| | 50.50 | 100.0 |

These are significant figures, indicating how our national expenditures for health services, totalling about \$750 millions, were distributed. They are for the year 1953, and, of course, we have no assurance that they will not change under some different system of medical care. But they do tell us how we are now spending our health-care dollar, and the channels through which that dollar passes.

Basic points of agreement

I would suggest that the general principles governing medical care about which there can be no disagreement are these:

- Health is so basic to life and living that it can no longer be regarded as an individual responsibility, but a responsibility for all.
- Because of the unpredictable nature of illness and the possibility of catastrophic costs that might be incurred, the individual family, completely on its own, can no longer look after itself for proper medical care.
- Too high a proportion of the people of this country are not getting adequate medical care and health services.
- Inability to pay should not exclude people from medical care.
- The fee-for-service system of paying for medical care is breaking down and can no longer be regarded as a rational system adequate for the needs of our day.
- Our ideal should be comprehensive medical care of high quality for every Canadian. Nothing less than this is in keeping with the dignity of Canadian citizenship and with the high ideals and vast resources of this vigorous young nation.

A universal national plan

If we accept these six basic principles, then it is obvious enough that we want nothing short of a universal national health plan that protects all people living in the country, every Canadian, man, woman and child. I believe, moreover, that it should be on a contributory basis, but with provisions that see to it that no one is excluded.

Again I should like to quote from the booklet of the Canadian Welfare Council already referred to ("Health Insurance—What are the Issues?"), in which four guiding principles are suggested for a national contributory plan:

- A nation-wide plan should limit the contribution or payment by an individual to an amount that he is able to pay.
- A nation-wide plan should cover the costs of medical care that are sufficient, as separate items or taken together, to cause the individual concern at the time they are incurred.
- A nation-wide plan should apply to all people regardless of physical condition or age.

- A nation-wide plan must apply to all people whatever their occupations or the areas in which they live.

Two more principles, I am convinced, must be added to these if we are going to develop a plan that provides health services of high quality:

- We do not want a mere cash indemnity system, giving the sort of protection that one can obtain through a commercial insurance policy, but a positive plan that makes for high quality services.

- I do not think that the Canadian people want a huge medical bureaucracy operating an impersonal service, and for this reason the administration of the plan should be decentralized as far as possible and integrated with existing hospital facilities and medical personnel. Moreover, I would strongly urge that lay people, "consumers", if you will, be included in voluntary advisory boards that will assist in the administrative operation of the services. We do not want to see the people of Canada sit back in a passive way and watch professionals and government officials directing a service *for* the public; we want instead to see our citizens feel that they are part of a great social experiment in which all the people must share responsibility for its success.

What about voluntary plans?

Then, what is to become of the large number of voluntary plans, including the co-operative ones, that are now in existence and that have given good service, up to a point, for some years? The answer is obvious: they should be gradually replaced by a universal plan that meets the needs of all the people. All forms of voluntary insurance can, at best, be regarded as intermediate or temporary steps towards a national service. If we accept the criteria laid down earlier, we will not be content with a number of competing plans which simply "skim off the cream" and leave a large number of people outside and unprotected.

Does this rule out co-operative and other voluntary plans altogether? Not entirely—for there are three good reasons why they will be needed for some time:

- Although the adoption of a national plan now seems almost imminent, there is still a period of time to be filled until it is in actual operation; and it is likely that some provinces will remain outside the national plan, at least for a while.

- A national health plan will come by stages, for that is the only practical way to bring it about. We still want to recommend a voluntary co-operative plan for the services outside the national plan, and as the national plan extends its coverage the co-operative plan can be reduced correspondingly.

- There will probably always be certain services outside the national plan, for one cannot say for sure where the word "comprehensive" finds its end, and no doubt there will always be specialized fields of service in which consumers can get together to help themselves to better health.

Principles of co-op medical care

For these reasons, and also because I believe that those who have the responsibility for directing a national health plan can learn much from co-operative practice, I wish to put before you the principles of co-operative

medical care that have guided and are now guiding many successful group health plans in both Canada and the United States. The best statement of these principles which I can quote for you was given in 1950 in an address by Dr. Dean A. Clark, then president of the Co-operative Health Federation of America:

"(1) . . . we seek to establish *the people's right to work in the field of health economics*. . . . (2) We seek the positive promotion of health, not a mere economic crutch for people to employ when they are already seriously sick. We hold that by and large the commercial plans in this field offer nothing more than such an economic crutch. (3) In the third place, we stand for the method of *prepayment for comprehensive medical care*. This is a relatively simple method to apply if one knows how, and it is extremely important to the medical profession. It is, since it assures that doctors will be well and steadily paid for their services. (4) Next, we stand for *group practice*, for the greatly needed team work among physicians which modern medical science not only makes possible but absolutely requires if its benefits are to be made available to the people. (5) In the fifth place, we stand for *the highest quality of medical care*, that is, we stand for the selection of physicians by intelligent advice not by a mere telephone book method. . . . (6) And finally, we stand for *consumer or lay control of the business and economic aspects of prepayment plans*. It is a fascinating and interesting fact that the positive, qualitative approach to medical care is realised only where such lay control exists. . . ."

May I again suggest that these rules laid down by Dr. Clark be kept before us in any plan of national health insurance that we undertake to put into operation in Canada.

Co-op medical plans in the Maritimes

A few co-op medical plans are operating successfully in the Maritimes and have given excellent protection to their members for some years. The most efficient of these plans, I would say, are those which are attached to existing co-operative organizations, whose members wanted medical care protection as an additional service. There are no new organizational expenses, overhead costs are reduced to the bare minimum, secretarial and book-keeping services are provided without additional personnel, and there is group loyalty which cannot always be counted on in other voluntary insurance plans. In such a co-operative supplying a medical care service, the funds for this department must, of course, be kept strictly separate from general business funds. Retention, that is, the part of the subscriber's premium dollar which is not paid out in claims, is reduced in this co-op set-up to a very low figure.

The current family rates (semi-private) for one of these plans, serving a large rural area in the Maritimes, are \$16.50 half-yearly for hospital coverage alone, and \$34.50 for hospital, medical and surgical coverage combined. Their experience in the past year permitted them to lower their rates.

Even though this co-operative plan, along with other voluntary insurance plans, be superseded by a universal national scheme as I have advocated here, its value will not be lost. Far from it, for it has built up a great deal of experience on the part of several hundred people, whose understanding of the problems involved is going to help in making the proposed national plan a success. Unless a good number of the people have some knowledge of these problems, unless they are given opportunity to take an active part in administering the plan, unless they feel that they have some responsibility for

it, national health insurance may encounter serious difficulties which no amount of skill on the part of medical men and government officials alone can remedy.

A tribute to pioneers

Here I should like to pay tribute to all those noble souls who have been working all across Canada during the past thirty or so years to organize the various voluntary plans which we now have in this country. In this audience we have hospital administrators, medical men, and other self-sacrificing citizens who have given countless hours of free time to help thousands of people in getting hospital and medical care. To you this country owes a great debt which can never be repaid in dollars and cents, but you have as reward and satisfaction the undying gratitude of all those whom you have helped to better health and security. As we pass in the years just ahead to a more comprehensive form of health insurance, I should like you to view the transition not as a discarding of what you have built, but rather as an evolution or growth to a broader form of protection that is more in keeping with the social needs of an age that is very different from that in which you began your work. Again, on behalf of the rank-and-file subscribers now enjoying the protection of voluntary health plans in Canada, I should like to thank you for the pioneering job which you have done.

I shall conclude this paper by telling you what I, as a layman, a consumer of medical services and father of a family, would like to have for health protection: (1) I want a personal physician for myself, one who will be a medical counselor to me and my family. (2) I want our family physician to be associated with a number of specialists in group practice. (3) I want that group to be attached to a modern hospital and medical center, which in turn is linked with larger centers for specialized treatment. (4) I want to be part of a medical plan that is oriented towards positive health and preventive care as well as the curing of ailments and disease. (5) I want to pay for this on a pre-payment basis according to my ability to pay, in a universal contributory plan. And furthermore I want to see everyone who works in this health plan, doctors, specialists, nurses and administrators, well paid for their services. (6) I do not want the protection which I and my family are receiving to end when I reach sixty-five, am unemployed, or physically disabled. (7) I want everyone else to get the same protection and care as I am getting; I want every family in Canada to have the same health service as mine is enjoying. I cannot take comfort from the security which I happen to have unless others can have it too—farm people, coal miners, fishermen, the aged, the unemployed, the chronically ill, all who count themselves Canadians. Such a plan, nation-wide in application but decentralized in administration and practice, carried on in the democratic traditions of our Canadian way of life, may well prove to be the deciding factor in building here a strong nation and a great people.

Rehabilitation Programs in Canada

A PANEL DISCUSSION

MODERATOR—G. WILFRED CRANDLEMIRE, B.A., B.ED.

This discussion was conducted at the forty-fourth annual meeting of the Canadian Public Health Association, Saint John, New Brunswick, May 29–31, 1956. The chairman was Mr. G. Wilfred Crandlemire, Provincial Co-ordinator of Rehabilitation, New Brunswick Department of Health and Social Services.

PROGRESS OF REHABILITATION IN CANADA

IAN CAMPBELL¹

Arnold Toynbee has said "the twentieth century will be chiefly remembered not as an age of political conflicts or technical inventions, but as an age in which society dared to think of the welfare of the whole human race as a practical objective".

I know of no field of present-day activities that better corroborates this statement than the rehabilitation of the handicapped. Here, we are dealing with a segment of the population that after centuries of humiliation, indifference and segregation, can be given an opportunity to take its place in community life with all the privileges and responsibilities that this entails. Modern society's concern for the sick and injured exemplifies the hopes and aspirations of the twentieth century for social justice and, as far as possible, equal opportunities for all.

The past few decades have seen tremendous advances in the whole sphere of health and welfare. In the field of rehabilitation, these advances have resulted in new concepts, methods and techniques that have fundamentally changed the position and the outlook of the handicapped. The old concept that the disabled are merely objects of charity has given place to a realization that medical skills can often combine to reduce or eliminate disability; that prosthetic appliances can often increase the all-round capacities of the individual; and that if the latent skills of the disabled are developed, many can become productive members of society.

In Canada the potential usefulness of the disabled has been demonstrated in the excellent rehabilitation program developed for disabled war veterans. Some of our Provincial Workmen's Compensation Boards by concentrating on a high standard of medical care, with continual emphasis on rehabilitation, have shown that with such an approach the period of disability can be shortened and the amount of permanent disability reduced. The psychological effect of such an approach combined with assistance towards realistic vocational goals, has led to achievements that have merited international acclaim.

We are proud of what has been done in these areas, and of the work done by our voluntary agencies, and Canada as a result has sought means of bringing such services to all disabled.

Following a National Conference on the Rehabilitation of the Handicapped, held in Toronto in 1951, a National Advisory Committee on the Rehabilitation of Disabled Persons was formed. As a result of this Committee's recommendation, the

¹National Co-ordinator, Civilian Rehabilitation, Department of Labour, Ottawa.

Civilian Rehabilitation Branch was established by the Federal Government in 1952, and in 1953 the Federal Government offered the provinces assistance to help them organize rehabilitation programs. Financial assistance was offered to share the cost of provincial offices to co-ordinate rehabilitation services, and means of directing the disabled to such services. The Federal Government offered to share with the Provinces the cost of providing vocational training to any disabled person should this be necessary to accomplish his rehabilitation. In the medical field, the Health Grants, already used in many areas for rehabilitation services, were supplemented by a Medical Rehabilitation Grant. Funds from this grant can be used to train medical staff; to purchase equipment for hospitals and rehabilitation centres and, on a sharing basis, to expand medical rehabilitation services. Nine provinces have established co-ordination offices; nine provinces are making use of the vocational training provisions and in nine, projects to improve medical services have been approved. Gradually a pattern is developing in each province through which organizations working with the disabled are working together in a co-ordinated manner. Through the offices of the provincial co-ordinators, cases are being referred for medical and vocational assessment and from there are being directed to both medical and vocational services that lead to ultimate placement in suitable employment. The National Employment Service, charged with the responsibility of finding suitable openings for such persons, reported an increase of 42% in placements of disabled persons in 1955. Complete figures of the many who have benefited are not yet available, but the first 631 cases reported amply demonstrate the benefits of rehabilitation. These 631 persons had 327 dependents. The casual earnings of the entire group in the year prior to rehabilitation totalled \$115,000, but as most had been maintained in institutions, or by public assistance, the cost of their support had exceeded this amount by \$283,000. In their first year they should collectively earn \$1,200,000. Such effort deserves the whole-hearted support of all who are interested in public health and it is to be hoped that members of the Canadian Public Health Association will see that constructive forces of rehabilitation are developed in every community and used to the full in the area for which they are responsible.

PROBLEMS IN REHABILITATION

FRANK G. WELLARD¹

The experience of the years since government started to play a part in rehabilitation has indicated some problems. They are less acute in cities and thickly populated areas than they are in sparsely settled sections; but they exist to a greater or less degree everywhere. They are associated with case-finding, diagnosis, treatment, educational qualifications and employment opportunities.

Medical Problems

In case-finding, the problems are not by any means confined to faulty or inadequate medical services. The greatest cause of poor case-finding is lack of knowledge by the general public of services that are available, and fear of the cost of services if they are known to be available. Too often the family doctor or the public health nurse is blamed because a child with a handicap was not discovered "long ago". More often than not the reason is that the doctor never saw the child after its birth. The handicapping condition was accepted by the family and nothing was done about it until the child appeared in school.

The same condition exists in the failure of people to seek adequate treatment of

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diseases, injuries caused by accidents, or the degenerative diseases of old age. Either they do not know that they can be helped or they fear the cost of treatment.

Diagnosis presents problems when people in remote areas are unable to get to the place where a complete assessment of the whole person can be made including the medical implications of the disability, the vocational adjustments that need to be made and the social factors which are involved.

Treatment is a large problem for the disabled person who has not the assistance of some kind of medical care or hospital insurance. Very often treatment for either congenital or acquired disabilities requires a long time and the costs are staggering to the person without resources. Often such a patient will not hesitate to accept aid from provincial or federal governments, but is too proud to seek aid from local charitable sources.

Vocational adjustment

Moving from the medical field, the first of the problems in vocational adjustment is that many disabled persons lack educational qualifications on which to base a constructive plan of training or retraining. It is not very difficult to place a skilled person in employment no matter what is his disability. But the market for ordinary labour is supplied with able-bodied people. The people who need rehabilitation service most are not those with severe disabilities if they have a skill; but those with lesser disabilities who have no "edge" in competition for simple work.

The second problem in vocational adjustment is lack of employment opportunities. There is an actual lack of suitable work for the disabled in some areas. There is still a lack of understanding by employers and employees of the fact that in a handicapped person what is important is not what they cannot do on account of their disability but what they still can do in spite of their disability. In addition to the two factors just mentioned is the fact that the official employment services are not staffed to grapple with the admittedly difficult problems of job placement for the disabled.

Now what can be done about some of these problems? Something is being done about them—but there are still gaps. To ensure that cases are discovered, many more people must realize what rehabilitation has to offer. This includes those who are directly concerned, their doctors, health and social service personnel, members and staff of voluntary organizations and the public in general. All of us need to recognize disability when we see and hear about it. We must be ready to interpret intelligently to people who need it, what rehabilitation means and where they can go to receive the needed service.

Diagnostic facilities are needed to supplement the knowledge of the family doctor when necessary. This means either that the patient must be able to get to the diagnostic service or the diagnostic service must be brought to him. Local conditions will determine which is the best procedure.

There is little point in finding and diagnosing a disabling condition if it is not possible to apply the necessary treatment to correct it or to improve it as much as possible. The mechanics of providing treatment for those who need it but cannot afford it is something to conjure with. Let us just say that it is a field where co-operation between government at all levels and voluntary agencies and communities and families and individuals can solve much of the problem.

The problem of basic educational qualifications must be tackled at the root. It must be mandatory that every child get an adequate education. It is too late at age forty-five, when a car drops on you and breaks your back, to find that you should have gone further than grade five in school. If children with congenital or acquired disabilities cannot learn in a normal school environment they should have an opportunity to learn at the pace they can. They need the education to offset the disability when later on they set out to earn their livelihood. It is encouraging that educationists recognize this need and are beginning to take steps to meet it.

And, finally, in job placement the need is for more personnel qualified to interpret the ability of the disabled person to employers. It is a selling job and it cannot be

done from behind a desk. Here is a great field for understanding and action on the part of voluntary organizations and individuals at the community level. I feel that the National Employment Service should be doing more than it is; but there will always be room for and need for co-operation with its placement officers.

The most rapid developments in rehabilitation service have been in the area of training. There is a beautifully clean-cut training program for the disabled who need it and can benefit from it. The cost is shared by federal and provincial governments. A person may be trained for any occupation within his physical and mental limitations.

Development has been slower in the areas in which medical service is needed. Case-finding, diagnosis and treatment services are not adequate to the anticipated need. So has development been slower in the placement field.

I have been asked to suggest what action is needed to hasten the development of a complete rehabilitation program. The action needed is that everybody who has a stake in the development of our society and an interest in human rights should work together to make rehabilitation give the disabled an even chance. That is all they want and all they need—an even chance.

THE ROLE OF THE PUBLIC HEALTH NURSE IN A REHABILITATION PROGRAM

CHRISTINE MACARTHUR, Reg.N., B.S.¹

Much emphasis has been placed on the rehabilitation of the wage earner. However, there is another group, which up to the present has received the least benefit from assistance programs. This is the physically handicapped homemaker, a large percentage of whom are mothers. Although they are not generally considered to be in the occupational field, this group has the largest number of disabled people of all ages.

In terms of family life, even a moderately severe disability incurred by the mother disrupts the household. A permanent disability is a continuing financial drain if the homemaker cannot carry on her usual responsibilities. Many families have resolved their problems in a satisfactory manner. Others lack the resources to make the necessary adjustments. The help that is most needed is to aid the homemaker in learning to utilize her capacities to the utmost.

The experience of the Victorian Order has been a continuing increase in calls for service to patients with long-term illness. The hospital has been the answer to the needs of people whose illness was of short duration, but it is not the total answer for people whose illness extends over long periods. Since there is still a shortage of hospital beds and personnel, particularly for patients requiring care for a long period of time, it is inevitable that more of these patients will be cared for at home. Furthermore, it is the belief that many patients can be cared for as well if not better in the home environment.

Every nurse has an important role in rehabilitation. Her part in the program starts with her first contact with the patient, and rehabilitation continues until the patient is able to resume his normal way of life. If the illness will not permit this he is taught to live with his disability and to enjoy a satisfying, useful life within the limits of the disability. Thus, rehabilitation becomes an integral part of total nursing care.

The care of patients with long-term illness requires skill and ingenuity on the part of the nurse. In the hospital the nurse may enlist the assistance of other co-workers such as physiotherapists, social workers, etc. In giving care in the home, however,

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although some of these workers may be available to a limited degree, the public health nurse has to depend on the co-operation of members of the patient's family. Understanding and helping the family to understand the total physical, mental and emotional needs of the patient is only one responsibility of the nurse.

The first step in physical care is aimed at making the patient more comfortable. Many of the nurse's activities to assist the patient to more rapid and complete recovery can be incorporated into routine nursing care. They are not activities which require a lot of extra time. For example, in giving a bed bath the nurse can encourage the patient to move his joints through a full range of motion and still keep the original objective of cleanliness and comfort.

The patient also is encouraged to maintain muscle tone and a full range of joint motion through self-help activities such as washing himself, brushing the teeth, combing the hair, etc. There are ninety-nine activities carried out by a normal person in routine daily living. Almost all activities in self-help are a combination of several complex movements and limitation of movement in any one joint means that movement will not be accomplished in a normal way. Nurses should always encourage self-help activities to assist in adjusting to any limitations of a long-term illness and thus becoming self-reliant. The value of rehabilitation to the individual in terms of personal development and personal freedom is immeasurable. No one can place a value on the ability to lift a spoon to feed oneself or to walk across a room, but these are things which rehabilitation has meant to many disabled persons.

In the past there was a tendency to treat the disease rather than the patient. For example, a man with a gangrenous leg which required amputation became interesting to the doctor and nurse because a life was at stake. The leg was treated, the stump healed without complication, and the patient discharged as cured and sent home. What was done to assist him to face the many problems that arose upon his discharge from the hospital? Although cured, he was barely alive. He was weak and unable to walk. Instead of possessing a symmetrical body he was now misshapen. His job prospects were poor. Worried about the future, he felt he could not face his social problems. Yet his life had been saved, he had been cured. Today, doctors and nurses are thinking more and more of the whole person. Care and rehabilitation are synonymous.

But let's go back to our homemaker. Her mental and emotional as well as her physical health must be provided for. She needs love and affection and security and a feeling that she is still needed. The public health nurse has a much better opportunity to observe the patient's background, her home and her family and friends. She can listen to the patient's fears and hopes and assist her in regaining her independence. Above all, the public health nurse thinks of her not only as a patient, but as member of a family and a member of a community.

A public health nurse herself continually needs to evaluate her own attitudes regarding rehabilitation. She must be convinced that time spent encouraging and assisting the patient to resume some independent activity is well worth the effort and is just as important as the giving of a bed bath. It is often much easier and less time-consuming for the nurse to give care herself than to teach the patient or a member of the family to carry out the care. Sometimes, because we encourage our patients and families to do things for themselves in order that they may be more self-reliant, it might appear that we do not want to give the total physical or nursing care. In reality, we are giving the best possible nursing care for the progress and eventual recovery of the patient. When we explain to the patient and family the value of self-help activities we get their complete co-operation.

Although nurses must always be watching for opportunities to instil in patients the will and desire to become self-reliant, in the final analysis the success of rehabilitation depends on the patient's own attitude.

To assist the patient with complete rehabilitation the public health nurse needs to know the resources available in the community. Too often we only talk of co-

ordination of services, we do not always practise it. All public health nurses need to be familiar with the programs that are being provided to assist disabled people. Sometimes nurses become discouraged because rehabilitation programs outline formidable lists of necessary service, i.e. medical specialists, physical and occupational therapists, social workers, vocational guidance workers, etc. None of these may be available to the nurse in her area. However, public health nurses have been helping patients maintain a high degree of health for years and have very often been able to achieve desirable results with guidance from the family doctor and patient and family co-operation.

Caring for patients with long-term illness is a challenging job. It is one of the hardest jobs in the world and one which is going to be needed more and more. Not only the bodies of her patients are in the nurse's care, but their hearts and all that makes their lives worth living. No one needs such understanding as one who sees the years stretch barren ahead, unless it be that patient's family.

THE VIEWPOINT OF INDUSTRY

SARAH A. WALLACE, REG.N.¹

In considering industry's part in a rehabilitation program, it might be well to review some of the past experiences of industry with disabled workers.

Prior to World War II, little interest was shown in employment possibilities for the handicapped. The man-power shortage brought about by war conditions forced industry to accept persons with disabilities. Obviously such persons had limitations but it was learned that, if the abilities of the person were related to the requirements of the job, the disability was not necessarily a handicap. This was not a new concept, but it had not been applied previously to large work groups on an organized basis. Experience showed that, with suitable placement, disabled workers could be successfully and gainfully employed, provided their emotional adjustment to their disability and to work was satisfactory.

During and after the war, the tragedy of veterans returning with amputations, blindness, etc. had great public appeal and most employers made a real effort to place these people. Many of the veterans were young, with only brief or no work-experience previous to their enlistment in the services. They had not developed good work patterns. The combination of humdrum work after a life of excitement and danger, sometimes coupled with poor emotional adjustment to their disability created difficulties for employers. The basic problem was not physical inability to perform the job, but personal maladjustment. Such experiences with maladjusted, handicapped persons have tended to make some employers reluctant to engage disabled workers. On the other hand, there are employers who have had satisfactory experience with disabled workers and are therefore quite willing to employ more. Other employers may have a disability themselves or have a handicapped person in their own family and thus be influenced in their attitude. These employers usually have an understanding approach to the rehabilitation of handicapped workers in their organization.

Requirements for Successful Rehabilitation into Industry

(a) Acceptance on the part of industry that the great majority of disabled persons, though handicapped, nevertheless, can work under ordinary industrial conditions, if carefully placed. The Canadian Chamber of Commerce recently made a statement on handicapped workers, as follows: "Available evidence demonstrates that those employers who have had experience with physically handicapped workers

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have found that their performance, when suitably placed, compares favourably with that of the able-bodied in similar work".

- (b) Adequate training to prepare the worker for the job.
- (c) Good vocational counselling so that people are guided into the right type of work.
- (d) Satisfactory personal adjustment to the disability and to work. Good work performance depends not only on physical capacity, but also on intangible attributes such as emotional stability, response to incentives, personality factors, etc. Emphasis should be placed on the development of these attributes early in the rehabilitation period.
- (e) Co-operative effort of placement officers, from official and voluntary agencies, with industry to assure proper placement, satisfactory orientation to the job and adequate supervision from the standpoint of production, safety and health. Most workers experience a period of stress during the early employment stages, following the transfer from a sheltered type of training or experience to competitive work conditions.

The Present Situation and the Future

There is evidence of increasing interest in the handicapped person. Governmental assistance is making possible greater opportunities for adequate preparation to do specific industrial work. National Employment Services and voluntary agencies, through their vocational counselling and placement services are assisting the handicapped to prepare for and locate suitable positions. Training and placement services, however, must still be expanded if the needs of the handicapped are to be met.

Industrial or occupational health services have been increasing steadily over a period of years, providing health supervision for workers, especially in plants employing over 500 workers. There are still large numbers of small plants, which in Ontario employ approximately two-thirds of the industrial workers. Many of these do not provide health supervision beyond the minimum requirements of Workmen's Compensation Acts for first-aid. Extension of health services, together with medical supervision by physicians with an understanding of the work requirements and a genuine interest in suitable placement could do a great deal to increase the employment opportunities for handicapped people.

In industry, particularly during the war years, considerable attention was directed to job analyses and job descriptions in order to assist in satisfactory placement. A good job description provides a picture of the requirements of the job, so that those responsible for placement can better decide whether a worker's abilities are such that he can do the job satisfactorily.

Many handicapped people can never compete in a regular type of industry but, with adjustment in work situations, can be employed in workshops for sheltered employment. Some of these workshops receive selected work contracts from industries but these are irregular and uncertain. Investigation might reveal a greater number of suitable contracts that could be given to these workshops in order to maintain a more even flow of work.

During the past 20-25 years there has been considerable development in rehabilitation programs to aid certain groups of the handicapped members of our communities. There is need for co-ordination if we are to make maximum use of existing facilities and services and plan for future expansion, so that disabled citizens may have the opportunity of returning to a productive, self-reliant status.

CANADIAN TUBERCULOSIS ASSOCIATION

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The Development of a CSA Standard for Continuous Thermal (Lindane) Vaporizers

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LINDANE is a member of the chlorinated hydrocarbon group of insecticides which includes such materials as chlordane, aldrin, dieldrin, toxaphene and the well-known DDT. It is considered to be about intermediate between DDT and the chemically unrelated, highly toxic parathion in its acute toxicity to humans. The effects of long-term exposure to low concentrations of lindane are very imperfectly known, although it seems quite possible that lindane and some others of its group may show a greater chronic toxicity than parathion. About a decade ago, when lindane was coming into general use as an insecticide, a novel means of disseminating the material into the atmosphere was introduced. This was the continuous thermal vaporizer, a device designed to vaporize the lindane continuously in the atmosphere in the presence of humans and so to eliminate the shortcomings of intermittent fumigations. Thus there came on the market almost simultaneously a new and toxic insecticide combined with an unconventional and, to health agencies, alarming method of disseminating it. In Canada the obvious necessity of regulating the use of these devices resulted in the formation of a special Committee of the Canadian Standards Association to draw up a standard on their construction, testing and use. This was the first CSA committee to draw up a standard which was based primarily on considerations of human health and safety, and it seems worthwhile therefore to give an account of the development of the standard. The standard (CSA Standard Z129) covered absolute rate of emission and its relation to room volume and ventilation. The permissible variation in rate of emission was also laid down. Tests for vaporizer performance and for purity of the lindane insecticide were described. The standard represented a guide to manufacturers in the construction of safe and effective vaporizers, and indicated to users and regulatory agencies, aspects of installation and use important in ensuring safety.

Principle of Continuous Vaporization

The continuous thermal insecticide vaporizer (1,2,3,4,5,6) is a device which consists basically of a cup containing insecticide, heated electrically to vaporize the insecticide into areas occupied by humans. Operation is continuous, a filling of insecticide usually being designed to last for a period of thirty days. To date, the only insecticide which has been employed to any extent in such devices is lindane. This material is generally heated to within a few degrees of its melting point and sublimes from the heated cup, partly condensing again to microscopic crystals as the vapor mixes with the colder room air (2). The successful application of this method of insect control depends on there being a range of concentrations of lindane vapor plus particulate matter in air, which are lethal to insects such as the house-fly for a relatively short period of exposure while at the same time such concentrations produce sub-minimal response in humans. It is therefore apparent

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that the success of such a means of control depends on the air concentration of insecticide necessary to control such pests being substantially lower than that necessary to produce minimal response in human beings. Actually, lindane is only a fair insecticide in meeting these requirements as will be pointed out. This principle of operation of the continuous thermal vaporizer has been a matter of concern both to pest control and to health agencies. The continuous emission of insecticide into the air in concentrations which may or may not be lethal to insects, depending largely on whether the rate of emission is suited to the room volume and the rate at which the room volume is ventilated, is a situation which is very conducive to the development of resistant strains of insects. Moreover, the continued exposure of humans to low concentrations of an insecticide such as lindane is a situation which health authorities have viewed with misgivings, since the possible long-term effects of such exposures have not been fully investigated. However, the CSA Standards Committee decided on the basis of all available toxicological and entomological evidence that a lindane vaporizer which could be adjusted to suit environmental conditions would be both safe and effective, provided that it functioned reliably and within certain specified tolerances.

History of the Continuous Vaporizer

The continuous thermal insecticide vaporizer was first marketed in the United States in 1947, and was introduced into Canada for the vaporization of lindane insecticide in 1952. The device soon found very wide use. Millions of them have been sold in the United States and hundreds of thousands in Canada for the control of house-flies and other flying pests. A large number of types have been sold, differing widely in effectiveness, quality and price. Recently, however, the sale of this device has declined for several reasons. They were often sold on the basis of excessive advertising claims and consequently gave disappointing results. Many types functioned badly and came to be distrusted. In many localities the increasing resistance of the house-fly to the action of lindane insecticide forced them out of the picture as an effective means of control. Meanwhile, the widespread and frequently indiscriminate use of these devices, followed by reports of ill effects as a result of human exposure, led local health authorities and government agencies to take steps to curtail or regulate their use and to some extent to force an improvement in their quality.

One outcome of the restrictions against the use of these devices has been the marketing of a variety of types of intermittent or "one-shot" vaporizers, which are supposed to be used in such a manner that human exposure to the vaporized lindane does not occur. Since, however, these devices are not covered by the present CSA Standard they will not be discussed here.

Legislative Control Over Vaporizers

In Canada, insecticide vaporizers have always required examination and approval prior to marketing in order to meet provincial regulations on electrical equipment. This approval applied, however, only to electrical shock and fire hazard. Since many early models functioned extremely poorly or erratically, the Federal Department of Agriculture which controlled the licensing of lindane for use in vaporizers required improvements in design and construction of later models. However, at the time of formation of the Standard, no requirements for testing rate of emission of vaporizers existed. Vaporizer manufacturers claimed a nominal rate of emission of lindane of 1 gram per 24 hours. This rate, recommended by the Interdepartmental Committee on Pest Control (8), was intended for rooms of 15,000 cubic foot size, and such vaporizers when used in rooms below this size, as they very frequently were, would usually be disseminating quantities of insecticide which were excessive from a health point of view. By the time a special CSA Standards Committee had been formed to study the problem, several reports of cases of alleged ill-effects due to over-exposure to lindane had appeared in the medical literature, and some health agencies had banned the marketing of vaporizers.

FORMATION OF CSA STANDARDS COMMITTEE ON VAPORIZERS

The CSA Committee on Continuous Insecticide Vaporizers was formed of representatives of government (federal, provincial and municipal), of vaporizer manufacturing industry, and of representatives of other interested groups under the chairmanship of the Chief of Laboratory Services of the Occupational Health Division of the Department of National Health and

Welfare. The duty of the Committee was twofold, viz., to decide on the basis of all available evidence whether a thermal lindane vaporizer which was both safe and effective could be designed in principle, and if such was the case to formulate a standard regulating its construction, testing and use.

Its members were Kingsley Kay (Chairman), Miss I. Kingston (Secretary; non-member), W. L. Ball, and P. E. Braid, all of the Department of National Health and Welfare, Ottawa; C. H. Jefferson and D. G. Peterson, Department of Agriculture, Ottawa; E. P. Aikinian, Nichols Chemical Co. Ltd., Montreal; J. O. Kentner, C. S. A. Approvals Laboratories, Toronto; D. W. Sanderson, Canadian Pest Control Operators Association, Toronto; S. N. Ward, Department of Public Health, Toronto; D. P. Williamson, De-Fly-Er of Canada, Toronto; F. F. Winberg, American Aerovap Inc., New York; and E. E. Wood, Consumers Research Laboratories Ltd., Toronto.

FEASIBILITY OF SAFE YET EFFECTIVE VAPORIZATION OF LINDANE

An assessment of the soundness of the principle of vaporizing lindane continuously in the presence of humans in order to obtain continuous insect control, requires some knowledge of the lowest air concentration of lindane which will provide insect control and the highest concentration which can be tolerated by humans without ill effect. It is then necessary to judge whether these concentrations are sufficiently different for this method of insecticide dispersal to be considered safe, and then to decide whether it would be possible to produce a vaporizer which would operate reliably within these concentration limits. The Committee studied these aspects of the problem and their decisions were based upon data from a considerable number of published and unpublished communications, the main points of which follow.

It was established that the air concentration produced by evaporating 0.5 grams of lindane into a 15,000 cubic foot volume over a period of 24 hours should effectively control house-flies. This decision was based on the results of several experiments. For example, 27 milligrams of lindane liberated into an 8,500 cubic foot volume over a period of 1 hour produced between 74 and 100% kill of house-flies in 10 minutes and between 80 and 100% in 1 hour. The insecticidal effectiveness of air concentrations of lindane much below these values was doubtful, and therefore for assured insecticidal effectiveness, the value given above had to be aimed at. At the same time it was stressed by the agriculture members of the committee that these concentrations were effective only against non-resistant flies, that resistant flies might withstand very much higher concentrations, and that the continuous use of lindane in any one locality would very probably result in the development of resistant strains of flies within a few seasons.

Exposure of animals to an air concentration of 0.6-0.75 micrograms of lindane per liter of air, 8 hours per day, over long periods, caused liver and kidney changes in animals but resulted in no effect on growth or mortality. Concentrations of about one-third this value (0.19 micrograms per liter, approximately) on a continuous basis over a period of several months caused no ill effects in rats. In setting tolerances for human beings it is customary to allow at least a factor of ten between the human tolerance and that deter-

mined for animals. On this basis the human tolerance limit for continuous safe exposure would be 0.019 micrograms per liter of air. This value is very close to the measured concentration of lindane in air (0.017 micrograms per liter) found by Tatro in normally ventilated rooms of 15,000 cubic foot volume in which lindane has been vaporized at the rate of 1 gram per 24 hours (9). Thus the requirements of insecticidal effectiveness and human safety indicate a rate of emission of $\frac{1}{2}$ gram per 15,000 cubic feet per 24 hours with a maximum variation of $\pm 33\%$ in the emission rate. This is expressed on a per-cubic-foot basis in the standard since it was agreed that the rate of emission must be suited to or adjusted to suit the space being treated. The 15,000 cubic foot space mentioned above indicates the maximum space which can be effectively treated by a single vaporizer under the stated conditions.

The question of ventilation was discussed, and in the compilation of the standard, the normal rate of ventilation of the ordinary types of occupied buildings was assumed to be not less than $1\frac{1}{2}$ air changes per hour (10,11).

The problem of contamination of food by lindane was discussed and a contamination of food not to exceed 0.5 parts per million was specified. This value represents not an official tolerance for lindane in food, but a degree of contamination which would usually not be considered significant.

THE CSA STANDARD FOR CONTINUOUS INSECTICIDE VAPORIZERS

The main points in the CSA Standard Z129-1954 are as follows:

The variation in rate of emission of lindane shall not exceed $\pm 33\%$, the maximum rate being 0.000066 gram per 24 hours per cubic foot of treated space in which the average air changes are $1\frac{1}{2}$ per hour. Thus the mean rate of emission (not explicitly stated) is .0000495 gram per 24 hours per cubic foot of treated space. The rate of emission must be suited to or adjustable to space being treated, but the emission rate must not exceed 1 gram per 24 hours. Thus spaces exceeding 15,000 cubic feet in size require more than one vaporizer. The vaporizer must be marked so that the space it is designed to treat is clearly indicated, and the vaporizer must be provided with a safety control to prevent excessive output.

A vaporizer model must be tested and used with the brand of lindane which has been licensed for use in it, and successive batches of a particular brand of lindane must undergo volatility tests to ensure uniformity of the product.

Vaporizers must be free from shock and fire hazard and otherwise comply with relevant electrical requirements of the Canadian Standards Association. They must not be used where there is an explosion hazard, must be mounted so that humans cannot approach closer than two feet, and must be mounted so that condensation of vapor does not occur on adjacent surfaces.

Vaporizers must be used in public buildings and commercial establishments only where human exposure does not exceed a working day and in food processing and handling establishments only where food exposure does not exceed 8 hours in 24. Contamination of food in any event must not exceed 0.5 parts per million. Vaporizers must not be used in homes.

Vaporizers must have a name plate showing the manufacturer's name, address and type number, the electrical characteristics, the brand and registrat-

tion number of the lindane to be used in it, and the space for which the emission rate is set (non-adjustable types) or the space to which each setting of the adjustment applies (adjustable types).

The standard also provides for the electrical and rate-of-emission testing of vaporizers as well as the volatility testing of the lindane.

TESTS ON VAPORIZERS

Tests made by the Department of National Health and Welfare on various vaporizers marketed prior to the formulation of the standard showed their rates of emission to be too greatly influenced by environmental conditions (e.g., room temperature and line voltage) for any but a very few well-constructed types to meet the requirements of the standard without modification of design.

SUMMARY

1. The clauses of CSA Standard Z129-1954 outlined above show the construction requirements, conditions of use and testing procedure for a continuous thermal lindane vaporizer which is both safe and effective.

2. The effectiveness of such a vaporizer relates only to non-resistant house-flies.

3. The difference between air concentrations of lindane which effectively control house-flies during a short exposure, and those which may safely be tolerated by humans over long periods of continuous (working-day) exposure, is barely adequate. In any new insecticide proposed for thermal vaporization it is highly desirable that this difference be considerably greater. It is also very desirable that such an insecticide should not result in development of resistant strains of insects or at worst should produce a resistance which is unrelated to that produced by the chlorinated hydrocarbons.

4. If a new insecticide is proposed for thermal vaporization the standard, in order to apply, would require modification in the specified rate of emission per cubic foot of treated space, in the allowable variation in rate of emission which would depend on the relative toxicity of the insecticide to insects and to man, in the procedure for testing the insecticide, and possibly in the clauses relating to food exposure, depending on the properties of the insecticide.

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The Care and Operation of Dishwashing Machines to Insure Bacteriologically Clean Dishes¹

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DISHWASHING machines installed in Canada are largely supplied by companies affiliated with United States companies or by companies manufacturing in the United States who export completed machines into Canada. In both cases, basic design engineering is generally a United States project, and since Canadian and American sanitary objectives are somewhat similar, developments in the dishwashing machine industry in the United States are designed to serve the mutual interest of both countries.

Prior to 1944 there was no common meeting ground for representatives of the dishwashing machine industry and public health officials. When the industry considered new models or the redesign of existing models, international acceptance was an immediate major concern. When problems were discussed with various public health officials, we seemed to always turn up with as many answers as the number of health officials contacted.

During 1944, the National Sanitation Foundation, a non-profit organization with headquarters at the School of Public Health at the University of Michigan, was organized. The N.S.F. charter provides for a broad consideration of the problems of public health and environmental sanitation. It charges the trustees with the obligation of approaching solutions through research and development. Here at last, we felt, was the answer to one of our major problems.

Immediately after the founding of the National Sanitation Foundation, development research programs were started and one of the very first was the testing of commercial dishwashing machines. These research findings were published in bulletin form and were widely distributed.

Research bulletin no. 1 was published in October 1947 and contained a complete research study on the sliding-door, single-tank, stationary rack, spray-type, dishwashing machine. Research bulletin no. 2 was published in August 1949 and contained a study of single-tank, spray-type, automatic rack-conveyor type dishwashing machines, with final curtain rinse. Though a considerable amount of ground was covered in bulletins no. 1 and no. 2, all phases of dishwasher testing have not been completed.

In June 1948, a dishwashing panel was formed. Health officials and industry assembled for the purpose of discussing and recommending certain

¹Presented at the annual meeting of the Ontario Public Health Association and Canadian Institute of Sanitary Inspectors (Ontario Branch), Royal York Hotel, Toronto, October, 6-8, 1955.

²Sales Manager, Hobart Manufacturing Company, Limited, Toronto.

procedures. These recommendations are contained in the 1948 Clinic Report (1). This was the first time in the history of the dishwashing machine industry that people of national repute, representing health officials and industry, sat down at a conference table and discussed their mutual problems on a national basis. Not only were these problems discussed, but definite recommendations were formulated (2).

The clinic and research work previously done by the Foundation by no means completed the work. It was necessary that the multiple-tank, spray-type, automatic rack-type machines, with final curtain rinse, be tested. When this work was completed, the National Sanitation Foundation published a single bulletin, containing in condensed form, a summary of the findings and the further research being carried on at that time (3). All the findings were based on research work.

It is recognized that industry's part in the National Sanitation Foundation is not all there is to the problem of clean dishes, but the industry is vitally interested in this co-operative effort with public health.

Dishwashing machines are produced in a wide range of sizes to suit the various types of operations. There are four well-defined groups:

Group 1 consists of small stationary-rack, door or rolling-hood type machines. The smallest unit in this group is a front-door opening, undercounter or free standing unit. It is a small unit usually installed in front or back bars of taverns for glass washing, in soda fountains for glass and mixed dishwashing, hospital diet kitchens, decentralized washing in small hospitals or in small restaurants for mixed glass and dishwashing, where the customer count per meal does not usually exceed 50 persons. The medium size machines in this group are revolving-hood, telescopic-hood, sliding or rolling door models. These are usually installed in small establishments, except that larger models increase the capacity to provide for customer counts up to 125 persons per meal. The largest size of machines in this group is the vertical, sliding-door unit, constructed for either straight through or corner installation. This machine is normally installed for centralized mixed dish or glass washing where the establishment has a customer count of up to 250 persons per meal. These models constitute approximately one-third of all of the dishwashing machine units produced today.

Group 2 consists of the single-tank, automatic rack-conveyor with curtain type rinse. This is produced in both the small and medium sizes with a re-circulated pumped wash solution and a final curtain rinse. This type of machine is second in popular demand and is normally installed in dish pantries for centralized mixed dishwashing in medium-size establishments. The smaller size unit has a capacity to handle dishes for approximately 300 to 400 persons per meal while the medium size units will provide capacity for 400 to 600 persons per meal.

Group 3 consists of multiple-tank, automatic rack-conveyor types with final rinse. These machines are constructed with two or more units built into the same housing and are therefore high capacity machines. They are constructed with a re-circulated pumped wash, a re-circulated pumped rinse and a final hot water curtain rinse. They are usually produced in three sizes to provide ranges of capacities of from 500 to 1,200 persons per meal, depending on the installation and type of service.

Group 4 is a relatively new addition to the dishwashing machine field. This is the inclined-dish, spray-type conveyor unit, which might commonly be termed "continuous racking". It is a multiple-tank unit, through which passes a conveyor constructed with inclined wire loops or nylon pegs. Dishes are inclined at an angle on the conveyor similar to normally racked dishes. These units usually consist of a re-circulated, pumped water-scraping section, re-circulated pumped wash section, a re-circulated pumped rinse section and a final hot water curtain rinse. These are high capacity machines and are built in sizes suitable for handling dishes from a service of 700 to 3,000 persons per meal.

One of the most important phases of good dishwashing is proper layout. Many times the layout is directly affected by the space available, but every installation should be planned to properly care for as many as possible of these basic operations.

Sufficient soiled dish loading space should be provided. A quick drain across the full width of the soiled dish table, with a removable strainer should be inset into the table immediately adjacent to the dishwashing machine. This drain prevents the entrance of liquid soil into the dishwasher.

Removal of unconsumed food. There are several methods of scrapping from which to choose. A rubber scrapping block, with waste-can below for disposal of unconsumed food waste is frequently used. Better results are obtained by water-scrapping which is usually achieved by one of four methods.

(a) A flush-off by means of warm water streams, utilizing a special insulated shower head with self-closing valve can be accommodated in most table layouts. For this method, the china is placed in the dish-rack and the rack located over a large strainer-equipped sink.

(b) A similar method can be used in combination with a food waste disposer. For this method the china is placed in dish racks and the rack located over a large recess in the soiled dish table, under which is located an electrically driven food waste disposer.

(c) A device known as the "salvajor" combines water scrapping and soil collection. The dishes are held under a stream of water of sufficient force to flush off gross soil with a minimum of splashing. The water is re-circulated with fresh water being added for dilution purposes. This is an independent unit which is placed in the soiled dish table ahead of the dishwashing machine.

(d) By far the best method of water scrapping is to handle this mechanically by means of a spray-type washing unit with a power-driven, re-circulating pump. The water is re-circulated in the same manner as the wash compartment of a spray-type dishwashing machine. This unit usually utilizes for its replenishing detergent water supply, the spill over water from the wash tank of the accompanying dishwashing machine. This device is usually a separate unit and is used in conjunction with the standard automatic dishwashing machine so that racks are automatically conveyed through the water scrapping unit and then through the dishwashing machine.

Dishwashing machines should be of adequate size. A most important point and one frequently neglected is the necessity for an ample supply of hot water. The machine itself is provided with adequate heating for the wash tank or in the case of the multiple tank machines, for all tanks employed. Often, the fresh hot water supply for the final rinse does not receive adequate consideration. Since this supply usually comes from the regular building supply and since this supply is normally maintained at lower than lethal temperatures, a booster heater or booster recovery system is usually required. These are now available for gas, steam, or electricity. It is important in any installation planning, that the heating and plumbing engineers carefully size these booster heaters or booster recovery systems for the particular size of machine being installed. All major dishwashing machine manufacturers provide data con-

cerning rinse water consumption by their respective models. Thermostatic regulators can be provided to closely control the dishwasher wash and rinse tank water temperatures by automatically adjusting the tank heating devices.

New plastic curtains which will wear longer and will not become impregnated with soil and grease are now available for conveyor-type dishwashers, in place of standard duck curtains.

Clean dish tables of sufficient size are essential. These should be provided to allow ample space for air drying of the china prior to unloading. When dishes are washed and rinsed at lethal temperatures, air drying in well ventilated dish pantries can be accomplished in 30 to 45 seconds. With this time as a known factor, the clean dish table can be sized accordingly to suit the particular machine.

GENERAL CONSIDERATIONS

There are several general considerations which make for a good installation. Dish rack returns of the sliding or roller type should be employed wherever practical. Proper storage for the racks should be provided during the down-time of the dishwashing operation. All dish pantries should be well ventilated, ceilings sound-proofed if possible and well lighted. An inexpensive paint-on type of sound deadener is available to reduce the noise level of the dish tables. A well designed detergent dispenser should be installed on the re-circulated pumped wash unit because hand feeding of detergent is rarely satisfactory. There are various types of dispensers available from detergent manufacturers which will closely control the concentration of solution. There should be a careful selection of a detergent of adequate quality with chemical components suited to local conditions.

A relatively new device known as a rinse line injector is available, which injects a measured amount of drying agent into the fresh water rinse. This speeds drying and in most cases completely eliminates the necessity for towelling china, glasses and silverware which may otherwise be required due to inadequacy of some of the factors mentioned earlier.

A well designed dishwashing machine is constructed so that it is easy to clean and easy to keep clean. Thorough cleaning can usually be accomplished without the use of any tools. Most dishwashing machine manufacturers provide complete instructions for proper care and cleaning of the machine, sometimes supplying wall charts. Among other things, rinse nozzles, wash arms, wash nozzles and strainers should be regularly cleaned. Most important of all in this respect, however, is the need for supervision to insure that the established routines and procedures are faithfully followed.

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Canadian Journal of Public Health

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PROGRESS IN FLUORIDATION OF WATER SUPPLIES

THE United States Public Health Service has reported a marked increase in the number of communities which are fluoridating their water supplies as part of the effort to protect children's teeth against decay. About 1,400 cities and towns with a total population of over 30,000,000 were using fluoridation at the end of September, 1956 in contrast with twelve communities with a total population of 328,000 in 1946. At the end of 1955 about half the communities of 500,000 population and one-fourth of the municipalities between 10,000 and 500,000 were fluoridating their water. Among the larger cities now using this preventive dental health measure are Chicago, Philadelphia, Baltimore, Washington, Pittsburgh, Cleveland, Milwaukee, San Francisco, St. Louis, and Buffalo. The tabulation indicates that one-fourth of the population in the United States resident in areas with a municipal water supply are now being furnished with fluoridated water. During the first nine months of 1956 communities with a combined population of 6,000,000 commenced fluoridating their water supplies.

A survey of the extent of water fluoridation in Canada was recently published by Dr. A. E. Berry, indicating that in 1955 seventeen municipalities with approximately 356,000 population employed fluoridation including Brantford, Sudbury, Oshawa and Toronto Township in Ontario; Moose Jaw and Saskatoon in Saskatchewan; Prince George, British Columbia; Pointe Claire, Quebec. To this report should be added Brandon, Manitoba. In January 1957 the Greater Winnipeg Water District system supplying Winnipeg, the cities of St. Boniface and St. James, and the town of Transcona commenced the distribution of fluoridated water.

Brantford was the first city in Canada to undertake fluoridation and the experience of ten years was reported in the March issue of the Journal. This report and the study made by the Department of National Health and Welfare of the results in Brantford with Sarnia and Stratford as two control populations indicated that the percentage of children having teeth free from decay increased from approximately 5 per cent to 22 per cent, representing a reduction of more than 50 per cent.

The Canadian Public Health Association, the Canadian Dental Association,

the Council of the Canadian Medical Association, the Ontario Dental Association, the Council of the Academy of Medicine, Toronto, and the Health League of Canada and other bodies have expressed in resolutions their unequivocal approval of fluoridation. Future action, however, is dependent on health departments carrying forward a broad dental health program including education and emphasizing the value of fluoridation.

A UNIQUE AND WELL DESERVED TRIBUTE

ON January 7, 8 and 9 a Conference on Cellular Biology, Nucleic Acids and Viruses was held under the auspices of the New York Academy of Sciences at the Waldorf Astoria Hotel, New York. It brought together more than six hundred scientists, including leading workers from a number of countries, interested in this rapidly expanding field of medical science. The opening day was devoted to poliomyelitis, the second day to fundamental considerations of nucleic acids and the third day to properties acquired by cells maintained in continuous culture and the role of tissue culture in the isolation and study of viruses.

The holding of the Conference was suggested by Mr. Basil O'Connor, President of the National Foundation for Infantile Paralysis, when a group of his friends desired to express their appreciation of his many years of humanitarian work. As January 8 was Mr. O'Connor's sixty-fifth birthday, the Conference was planned for that time. On this occasion tribute was paid to him for his great work in organizing and developing the National Foundation for Infantile Paralysis. Under his leadership, the National Foundation was established as a great citizens' effort to care for every needy polio sufferer in every part of the United States. From the commencement, medical research and the training of professional workers were recognized as of the first importance. More than \$250,000,000 has been provided by voluntary contributions for the treatment of patients, \$28,000,000 for medical research, and \$25,000,000 has been used in the training of professional staff required in the care of patients and in the conduct of research. Mr. O'Connor's dynamic leadership was shown in the planning of a carefully controlled field trial of Salk vaccine in 1954. It was primarily due to his unfailing confidence in the members of the Foundation's scientific advisory board that the nation-wide trial of the vaccine was carried through to a successful conclusion. For more than thirty years he has given generously of his time to programs for the improvement of health and welfare of mankind both nationally and internationally. Canada, too, is indebted to him for extending the work of the Foundation beyond the United States through support of research in the causes of poliomyelitis in the Connaught Medical Research Laboratories in the University of Toronto, and through extending the trial of the vaccine in 1954 to the province of Alberta and the city of Halifax.

The Canadian Public Health Association joins in the appreciation of the work of Basil O'Connor, and extends to him its best wishes.

Special Articles

A Review of Nursing Education in New Brunswick

Edith Kathleen Russell, Reg.N., B.A., B.Paed., D.C.L., LL.D.

The Journal is indebted to Miss Dorothy M. Percy, R.R.C., Reg.N., Chief Nursing Consultant, Department of National Health and Welfare, Ottawa, for preparing this abstract of the Report.

IN a sense, history was made when, "with support from the New Brunswick Department of Health and Social Services, the University of New Brunswick applied for and received a grant-in-aid of research on nursing education from the Department of National Health and Welfare". The uniqueness lay in the fact that this marked the first time *nursing research* was favourably recognized under the Orders-in-Council governing the Research Grant of the National Health Grants Program.

Any attempt to make an abstract of this Report—a document at once scholarly, concise, tightly written and withal, in deceptively simple style—might, with some degree of reasonableness, be construed as a piece of unwarrantable impertinence. On the other hand, such an effort might have merit if it stimulates thoughtful reading of the brief report (63 pages exclusive of a 10-page Appendix).

This study came about because of the sustained concern of a small group

in New Brunswick (non-nurses as well as nurses), who recognized in the serious and steadily increasing deterioration of nursing in their province a challenge to prompt, vigorous and thoughtful action.

The objectives of the research project are spelled out in section I. They are also summed up in one terse sentence at the end of the section: "To study ways and means of reorganizing nursing education in New Brunswick *in order to provide more adequate nursing service.*" (The italics are Miss Russell's.) This is the central theme of the Report, the core around which all else is significantly grouped.

In a brief preface Dr. C. W. Argue, Dean of Science of the University of New Brunswick, speaks warmly of their good fortune in securing the services of Miss Kathleen Russell to carry out the project and prepare the Report. "A recognized leader in her profession," Dr. Argue says, "Miss Russell combines long experience, keen insight and good sense and in carrying through a difficult and controversial project she has consistently employed great natural courtesy and tact."

In outlining the history of the study, Miss Russell pays tribute to the persistence and tenacity of a small group of nurses in New Brunswick who have not only been fully aware of the weaknesses and deficiencies of New Brunswick nursing but also have, to quite an unusual degree, been able to enlist in

the cause of reform the informed support of influential non-nurse individuals and groups.

To some it may appear that Miss Russell has spent a disproportionate amount of time setting New Brunswick's nursing problems in the "double perspective" of Canadian and world nursing. It would seem, however, that this has been done quite deliberately in order to show unmistakably that New Brunswick's dilemma is but part and parcel of a universal dislocation; that these deep disorders of nursing cannot be permanently or satisfactorily solved by such expedients as stepped-up recruitment; bigger and better nurses' residences; larger amounts of "pin money", etc.

The Report consists of three main divisions:

- I. *Background*—(9 sections dealing with: the Terms of Reference of the Project; National and International Background of the Study; History of Nursing and of the School of Nursing; the Content of Nursing; the Partitioning of Nursing Practice; University Education for Nursing; Nursing for Mental Health; Auxiliary Nursing Service; Nursing for the Home.)
- II. *The Study*—procedure and findings.
- III. *Recommendations*—objectives; a comprehensive plan for action in New Brunswick; preparation for action; new educational patterns; list of recommendations.

In dealing with some of the newer patterns in nursing education, Miss Russell makes it clear that the "independent" school, which has been hailed as a break with the customary type of hospital-based school of nursing, is indeed a case of "innovation" being merely a return to tradition", inasmuch as the original school organized by Florence Nightingale at St. Thomas's in 1860 was completely "independent".

The recent (and seemingly increasingly popular) trend to shorten the traditional three-year hospital nursing school course to two years with an

additional compulsory year of "internship" on salary comes in for careful scrutiny, and a warning is issued against the uncritical acceptance of such a pattern. "This could provide an excellent preparation for nursing practice, but not necessarily so. The intern will serve as a graduate nurse while the salary which is promised her is much lower than the salary which must be paid to a graduate. Further, the intern will be much more under authority and compulsion than the graduate. Hence the internship might well develop into just another form of cheap nursing labour without educational value."

Tracing the evolution of the auxiliary worker, Miss Russell notes with quiet irony, the situation following World War II when government funds were earmarked to facilitate the setting up of schools for practical nurses so that non-professional ex-service women might be directed into a useful and badly needed occupation. ". . . a startling proposal," says Miss Russell, "when we consider how long and how earnestly the regular schools of nursing had sought public support but had been unable to obtain it. . . . Note that the theoretical section of these government approved courses is given in a real school, quite distinct from the hospital and where the hospital authorities have no jurisdiction over the student or the curriculum."

Miss Russell calls attention to the "curious twist" the whole practical nurse situation has recently taken whereby "the certificated practical nurse has been almost entirely lost to the home and has become a hospital worker, differing only in degree from the original ward aid and differing only in other degrees from the registered nurse. Now she receives a daily rate of payment quite beyond the financial resources of the ordinary home; and the conditions and schedules of her services are regulated in

strict accordance with those of the registered nurses. These conditions usually fail to serve the home needs."

The development of the idea of university education in nursing is skillfully portrayed in the Report, as is the need for some comprehensive plan for home nursing. The desperate need for additional nursing personnel in mental hospitals is touched on. Here Miss Russell suggests a two-pronged attack:

- (1) Preparation of all nurses to meet the mental as well as the physical needs of patients.
- (2) Preparation of a special group of nurses for mental hospitals.

THE FINDINGS

Statistical findings relative to the Study itself are contained in Appendix B. The following statements are picked at random from the subsections entitled, respectively, "*Concerning Hospital Nursing Service*"; "*The Public Health Service*"; "*Nursing for Private Homes*"; "*Concerning Nursing Schools*"; "*Attitudes toward Nursing Education and Nursing Service*". They may serve as a sample of narrative comment in this section of the Report.

"The total enrolment in all (14) schools was 662 on 30 June, 1956. Half of the total number of students were enrolled in three schools; two-thirds in five schools. Some of the schools find it exceedingly difficult to recruit students. A few are extremely small."

"Many good candidates for nursing leave New Brunswick to enrol in nursing schools elsewhere. It appears also that many graduates of New Brunswick schools leave the Province soon after graduation for professional work elsewhere."

"At times it is difficult for a graduate of a New Brunswick nursing school to obtain reciprocal registration in another Canadian Province."

"There is a lack of nursing in the general hospitals and perhaps an actual shortage in the number of nurses there. However, it is not possible to prove or disprove this statement at present for it is acknowledged that a certain amount of the nurse's time in these

hospitals is being used for non-nursing duties."

"There is great difficulty in filling vacancies on the graduate nurse staffs of some of the hospitals."

"There is confusion in the nursing service of the hospital ward when this service is shared with too little distinction by the practical nurse and the nurse (meaning graduate or student); and sometimes more confusion by the presence of a ward aid also."

"There is an inadequate supply of nursing service for the tuberculosis hospitals."

"It is impossible to secure adequate nursing staff for the psychiatric hospitals."

"There is difficulty in filling vacancies on the staff of the public health nursing service of the Province."

"There is a formidable lack of nursing service for the sick in private homes. The Victorian Order of Nurses and the Red Cross provide this in a very few localities. Otherwise the whole matter awaits attention."

"Certified practical nurses are not available at a rate payable by the average home, or under conditions acceptable to it. Hence these workers have almost disappeared from the home."

"There are very few clinical instructors in the schools."

"The number of classroom instructors is increasing but many more are needed."

"There appears to be rejection of nursing by potential candidates because the nursing schools do not offer actual student conditions; it is too evident that adequate learning conditions are not assured. It is feared that desirable candidates are refusing to gamble on this use of three years of time, and that the parents of such young people are even more strongly opposed to the gamble. Even so, many promising students are in the schools."

"A large number of students are lost from the schools during the training period."

"In spite of difficulties, some schools are being given opportunity to do remarkably good work. With greater freedom these could make amazing progress."

"There is wide-spread belief that the nursing school is the indispensable prop of the nursing service of the general hospital. This has resulted in the maintenance of some very small nursing schools in small hospitals."

"There is a feeling of great financial pressure in the hospitals producing fear which interferes with objective consideration of nursing education."

"There is a seemingly hopeless attitude regarding nursing for the private home."

RECOMMENDATIONS

This last section of the Report (XI) deserves careful reading and re-reading. The objectives of the research project are reviewed and a plan of action outlined requiring two successive periods of three years each for implementation—Period I from 1957-60; and Period II from 1960-63.

Period I

1. Certain new educational programs to be initiated, including a school of nursing at the University of New Brunswick and the early establishment of two independent schools in connection with hospitals.
2. The immediate establishment of short institutes for the preparation of a group of clinical instructors for the schools. This is meant to be merely a temporary measure to be discontinued as soon as the University school can provide formal courses for this purpose.
3. Nursing service in tuberculosis and psychiatric hospitals to receive special attention.
4. Action to be taken regarding the auxiliary nursing services in hospital wards.
5. Action toward creating a comprehensive home nursing service for the Province.

Period II

1. A comprehensive plan for the total nursing school situation throughout the Province.
2. Increase in the number of independent hospital schools.
3. A faculty of nursing to be fully established at the University of New Brunswick with degree courses in operation.
4. Satisfactory programs established for home nursing services, hospital nursing, and public health nursing.
5. A pattern for continuous research by the New Brunswick Association of Registered Nurses.

The Recommendations, spelled out in detail in the last pages of the Report, consist of seven main divisions:

- A. Recommendations regarding the Hospital Schools of Nursing and their students.
- B. Recommendations concerning a University School of Nursing.
- C. Recommendations regarding Emergency Preparation for Clinical Instructors.

- D. Recommendations regarding Auxiliary Nursing Personnel.
- E. Recommendations regarding nursing service in general.
- F. Recommendations regarding Mental Health Services.
- G. Recommendations regarding financial help for students.

No useful purpose would be served by quoting at random from these Recommendations. They need to be read in their entirety. The New Brunswick Association of Registered Nurses in annual meeting assembled in October, 1956, received the newly published Report, debated it carefully over several days and unanimously adopted it *in toto*, realizing full well that such action commits the members of the Association to unremitting effort for a long time to come.

As an earnest of their practical belief in the need to demonstrate their willingness to make a start on implementing the recommendations of the Report, action was immediately taken to raise Association annual fees from \$12 to \$20 in order that Institutes for the preparation of clinical instructors might be started promptly.

In this connection Miss Russell's final remarks in Section X (p. 51) seem particularly apt:

"Nursing is so dependent upon medical, social and governmental conditions that, alone, it is helpless to effect radical change. Authority and power must come from these allied groups. If any thing is to be done to improve nursing, all must:

- (a) realize and help to correct the fundamental obstacles
—to good hospital conditions,
—to good nursing school conditions,
—to good conditions for nursing service;
- (b) help to find the financial support required to make the necessary changes.

A distinguished school of nursing provides the one certain attraction for candidates for the profession, and will have influence that outweighs all the recruitment programs that can be offered. It would not be impossible for New Brunswick to set this standard for every one of its schools; the essential resources are available now within the Province."

Well, then, here is a blueprint. Will it be "just another Report", imaginatively conceived, brilliantly executed—and doomed to honourable retirement in a well-lined pigeon-hole? It would be a pity if this should be the case. Bold, decisive action on a co-operative basis would justify the degree of flexibility inherent in the Report.

There is "lebensraum" for various approaches to the complex problems dealt with in the Report. It may well be that what happens in New Brunswick as a result of this Study will have significant repercussions elsewhere in Canada and beyond our own borders as well.

Comments on the 1955 Salk Vaccination Program in the Province of Quebec¹

A. R. FOLEY, M.D., DR.P.H.²

ON April 12, 1955, the report of Dr. Francis informed the whole world that Salk vaccine is not dangerous and is capable of protecting children against poliomyelitis. The Connaught Medical Research Laboratories, University of Toronto had already commenced the shipping of vaccine to the provincial health departments. In the Province of Quebec, we received the first supply on April 21 and the second on April 26. On May 2, 1955, the sixty-seven Health Units of the Province, as well as all independent cities and towns, had received their supply of vaccine, with instructions to proceed with vaccination on that day.

In our province, past experience had shown that the greatest proportion of polio cases occurred among the two-year-old children. For this reason, it had been decided that Salk vaccine would first be offered to this group. Unfortunately, the Cutter Company incident, in the United States, was reported on Sunday, May

1, by news agencies and publicity was given through radio and television.

We had planned our program to cope with the crowds expected to attend all the clinics opened throughout the province. These clinics were staffed with doctors, nurses and special personnel to maintain order. The alarming publicity in the United States was such that on the evening of May 2, we realized that the fear of the population was great enough to make a dismal failure of our vaccination program.

In order to learn the situation in each locality, I went to Montreal during the day visiting each health service on the way. At departure time, 9.30 a.m., the clinics opened in the city of Quebec at the Levis Health Unit and at the Quebec County Health Unit were still waiting for their first client. At Donnacona, seat of the Portneuf County Health Unit, a few mothers accompanied by three children were patiently waiting for the arrival of three other children, so that we could open the first ampoule of vaccine, without loss of material. At noon, the Health Units of Champlain, Three Rivers, St. Maurice and Mas-

¹Presented at the forty-fourth annual meeting of the Canadian Public Health Association, Saint John, New Brunswick, May 29-31, 1956.

²Epidemiologist, Ministry of Health, Quebec.

kinonge had given vaccine to about 15% of the children who had been expected. In the afternoon, the Berthier Health Unit had vaccinated only 30% of the number of children expected. At the l'Assomption-Montcalm Health Unit, only 10% of the children attended. In Montreal proper, the Health Department had opened seventy-eight clinics throughout the city. Everything had been arranged to permit 5,000 children to be vaccinated daily. On the evening of May 2, less than 500 children had reported to the vaccination centers and in some fifty clinics, not one child had attended.

The situation was disastrous and radical steps had to be taken to overcome the fear of mothers. After the administrators had talked things over, it was decided that vaccination would be made available to all children, one to ten years old. This decision was announced at noon on May 3 to all the health officers and to the press, radio and television. By evening, the situation was beginning to improve and the next day, May 4, the vaccination program was really under way. In the following week, public feeling toward vaccination changed to such an extent that parents were lining up for hours outside clinics in order to

have their children vaccinated. The situation had its humorous side—quarrels were even breaking out among mothers who attempted to steal each other's places in the waiting lines.

On the basis that a measurable degree of protective immunity is not established until six weeks after the second injection, our vaccination program was planned to be completed at the very beginning of June in order that by July 15—the date when the incidence of polio is high each year—the children exposed to polio might benefit from the immunity. This meant that we had to halt our general public health program for over a month in order to concentrate all our efforts on poliomyelitis vaccination. We would not like to go through a similar experience again, for the number of vaccinations with B.C.G. and vaccinations against whooping-cough and diphtheria decreased considerably.

We had also asked all our officers to investigate every incident reported during this vaccination period. Numerous incidents were reported. The investigation carried out established in all cases that Salk vaccine was not responsible for the difficulties which were observed.

| Age | Vaccinated | Per cent | Group total |
|-------|------------|----------|-------------|
| -1 | 5,256 | 2.5 | |
| 1 | 22,238 | 10.7 | |
| 2 | 42,150 | 20.3 | |
| 3 | 22,907 | 11.1 | |
| 4 | 21,161 | 10.2 | |
| 5 | 18,970 | 9.2 | |
| 6 | 18,755 | 9.1 | |
| 7 | 16,682 | 8.1 | |
| 8 | 15,398 | 7.5 | |
| 9 | 13,159 | 6.3 | |
| 10 | 10,619 | 5.1 | |
| Total | 207,295 | 100.0 | |

In the course of the year, 207,295 children received two injections of Salk vaccine. The following table gives the distribution of vaccinated children according to age.

During the year, 117 persons were reported to our division as having clinical poliomyelitis, a morbidity rate of 2.6 per 100,000 population. Of these 117 cases, thirteen had a fatal outcome, but no deaths occurred among children who had received vaccine. Four of the children who were vaccinated suffered an attack of poliomyelitis. A three-year-old boy, vaccinated in May and June, developed polio on September 16, with left facial paresis and paresis of the left leg. A six-year-old boy, vaccinated in May

and June, got quadriplegia on September 28. A two-year-old boy, vaccinated on May 4 and 18, developed paralysis of the left leg on August 3. An eight-year-old boy vaccinated on May 18 and June 6 gave indications of polio on August 15. There was no paralysis, but the cerebro-spinal fluid had a cell count of 45.

In closing, I should like to pay tribute to the devotion of the personnel who performed an extraordinary task under unfavourable circumstances. They were responsible for the success of the program. However, we would not like to impose upon them another vaccination program under similar conditions.

ASSOCIATION NEWS

The Committee on the Certification of Sanitary Inspectors has announced the results of the Fall examinations of the 1955-56 correspondence course leading to the Certificate in Sanitary Inspection (Canada). Twenty-three candidates successfully completed the examinations, three are required to write supplemental examinations, and three candidates failed. The following candidates will receive the Certificate in Sanitary Inspection (Canada): L. E. Agassiz, *Kelowna, B.C.*; F. Ainley, *Swift Current, Sask.*; E. H. Almond, *Lloydminster, Sask.*; W. H. Campbell, *Saskatoon, Sask.*; L. W. Clay, *Qualicum Beach, B.C.*; A. O. Dubé, *Melfort, Sask.*; W. Ford, *St. John's, Newfoundland*; W. H. Foster, *Moncton, N.B.*; D. W. M. Heiberg, *Regina, Sask.*; E. L. Hoffmann, *Regina, Sask.*; John Hoover, *Nelson, B.C.*; H. W. Kirk, *Vernon, B.C.*; J. W. Hayter, *Halifax, N.S.*; D. A. Morgan, *Vancouver, B.C.*; A. J. Neumann, *Weyburn, Sask.*; M. R. Rondelet, *Cloverdale, B.C.*

Douglas Roe, *Trail, B.C.*; R. J. J. Scott, *Banff, Alberta*; Harry Smith, *Victoria, B.C.*; E. J. Thompson, *North Battleford, Sask.*; Ian Walsh, *St. John's, Newfoundland*; H. B. Webb, *Jasper, Alberta*; L. E. Wright, *Moose Jaw, Sask.*

Manitoba Public Health Association

The following officers of the Manitoba Public Health Association will serve for 1956-1957. Past President: Miss Jessie Williamson, Director of Nurses, Manitoba Department of Health; President: Dr. William Watt, Director of Local Health Services, Manitoba Department of Health; First Vice President: Mr. William Ward, 320 Sherbrook Street, Winnipeg; Second Vice President: Mrs. Margaret Mackling, Supervisor of Nurses, Victorian Order of Nurses, Winnipeg; Secretary-Treasurer: Mr. Ralph Wendeborn, Director of Health Education, Manitoba Department of Health.

NEWS NOTES

Federal

Dr. P. E. Moore, director, Indian and Northern Health Services, and T. J. Giles of the Research Development and International Health section, Department of National Health and Welfare, left late in December to attend the semi-annual meeting of the executive board of the World Health Organization in Geneva, Switzerland.

A new radiation laboratory for the Department of National Health and Welfare is nearing completion in Ottawa. Dr. Peter J. Mar, formerly of Victoria, B.C., has been employed by the radiation services, Occupational Health Division, and is presently attending a two-month indoctrination course at Atomic Energy of Canada, Ltd., Chalk River, Ont., in preparation for his new position which will involve the carrying out of experiments on low-level radiation in the new laboratory.

The first part of a two-stage study of silicosis hazards in mines in Newfoundland has recently been completed by J. P. Windish of the Laboratory Services, Occupational Health Division, Department of National Health and Welfare.

Miss Esther Robertson, nursing consultant in the Child and Maternal Health Division, Department of National Health and Welfare, participated in a conference on child and maternal health at the annual meeting of the New Brunswick public health nurses in Fredericton in mid-December.

The Department of National Health and Welfare has announced that the new Ontario Cancer Institute, Toronto, has been allotted a federal hospital construction grant totaling \$337,080. The Institute, now being built adjacent to Wellesley Hospital, will have space for 95 beds and for out-patient facilities. It will be devoted to the active treatment of cancer patients from all parts of Ontario, using the most advanced techniques, including radium, deep x-rays and cobalt 60. Cancer surgery will be done in Wellesley Hospital. It is anticipated that the Institute will also function as a research center. Costs of construction not covered by the federal grant are being met by the provincial government and private donations.

Alberta

A new salary schedule has been announced for Alberta's local health services which is to become effective April 1, 1957.

Saskatchewan

Dr. M. G. Martin has been appointed director of the Munroe Wing (psychiatric) of the Regina General Hospital. Dr. R. F. Lynch succeeds Dr. Martin as director of the Regina Mental Health Clinic. Dr. Leo Kawula has been appointed medical consultant in maternal health in the Child Health Division of the Department of Public Health. Mr. Merle Kirk, B.A., health educator, has been assigned to the North Battleford Health Region staff.

Saskatchewan's first Children's Dental Health Day, sponsored by the Department of Public Health and the Saskatchewan Dental Association, was proclaimed by the Lieutenant-Governor in Council for observance throughout the province on February 6.

The province's third annual Child Safety Day will be observed on Sunday, May 5, sponsored by the Department of Public Health, with assistance from women's organizations, churches, professional bodies, the Boy Scouts, Girl Guides, and other groups.

An inventory of educational activities and safety provisions in hospitals of the province is being made by Michael Palko, B.A., M.P.H., of the Health Education Division, in co-operation with the Department's Medical and Hospital Services Branch.

Manitoba

Dr. M. R. Elliott, Deputy Minister of Health for the Province of Manitoba, was elected a Vice-President of the American Public Health Association at its 84th annual meeting, held recently in Atlantic City, New Jersey.

Dr. Elliott has been active in the field of public health since he joined the department in 1936 as Provincial Epidemiologist. After an absence of six years in the armed forces he served as Director of Extension Health Services for Manitoba until his appointment as Deputy Minister in 1951.

About 50 per cent of the population of Manitoba is now drinking artificially fluoridated water. Until the new year only the city of Brandon had fluoridation but the recently started operation of fluoridating equipment in the Greater Winnipeg Water District system has brought this protection to residents of Winnipeg and its suburbs, to the cities of St. Boniface and St. James, and to the Town of Transcona.

Winnipeg is now the largest Canadian city adding fluorides to its water.

Late in December the Town of Emerson became the fifth Manitoba community to approve installation of a waterworks and sewerage system by vote in 1956. Four more have preliminary plans approved by the Department of Health and Public Welfare but have not yet voted. Seven are under construction or have been completed within the past year and nine existing systems are now being expanded.

Miss Mary Wilson, former Nursing Consultant with the provincial Bureau of Public Health Nursing, has been named to fill the recently established position of Educational Director for the Bureau and will be in charge of staff education and induction programs and new student orientation. She also will participate in training of student nurses from hospitals and from the University of Manitoba School of Nursing.

Over 100 nurses attended a two-day institute on care of the cardiac patient at the University of Manitoba during the Christmas week.

With the co-operation of the Associated Hospitals of Manitoba and the Hospital Rate Board the Health Department has been conducting a series of hospital accounting institutes at several points in the province in an attempt to standardize accounting methods in Manitoba hospitals. All hospital personnel, board members and auditors were invited.

Ontario

Health Minister Mackinnon Phillips has announced a number of personnel appointments and promotions in the Ontario Department of Health including the appointments of Dr. W. Gordon Brown, National Health Grants Administrator, as Chief Medical Officer of Health, and Dr. B. H. McNeel, director of Community Mental Health Services and former superintendent of the Ontario Hospital at St. Thomas, as chief of the Division of Mental Health. Dr. McNeel succeeds Dr. R. C. Montgomery who has retired because of ill health. Dr. C. A. Buck, chief inspector of the Division, has been named Director of Ontario Hospitals. Dr. Brown takes over the position formerly held by Dr. J. T. Phair in conjunction with the latter's deputy ministership. Dr. Phair continues as deputy minister of the department. The National Health Grants administration office is now in the charge of William Nichols, while Dr. Brown's interests in the

Divisions of Venereal Disease Control, and Maternal and Child Hygiene will be supervised by Dr. G. K. Martin. Dr. Phillips also announced the appointment of his executive assistant, Dr. Frederick A. Evis, as the department's medico-legal consultant. Miss Margaret Higginson, Dr. Phillips' secretary, has been named departmental executive officer.

As many of its duties are now being assumed by the Ontario Water Resources Commission, the Division of Sanitary Engineering will be disbanded. A new Division of Environmental Sanitation will be set up in the near future to supervise refuse disposal works, milk pasteurization plants, frosted food locker plants, cemeteries, summer camps and food-handling establishments, the last named in co-operation with municipal health authorities. A director, to succeed Dr. A. E. Berry, head of the Sanitary Engineering Division and now General Manager of the Water Resources Commission, has not yet been named.

Nova Scotia

On January 14, 1957, the Nova Scotia Rehabilitation Center was opened in a section of the Halifax Tuberculosis Hospital. The center is a project of the Nova Scotia Rehabilitation Council. It is jointly financed by federal-provincial grants and the contribution of member agencies. In its early stages, the Nova Scotia Rehabilitation Center offers out-patient services in physiotherapy, occupational therapy and speech therapy to children and adults under the supervision of Dr. Arthur Shears, Medical Director. These services are supplemented by vocational and psychological counselling and social case work. It is planned that in-patient services will be established as soon as space and staff permit. The Rehabilitation Center is strategically located in relation to the Children's Hospital, the Victoria General Hospital and the Medical School of Dalhousie University. In addition to the medical director the staff is composed of two physiotherapists, an occupational therapist, a speech therapist, a vocational counsellor and administrative personnel. Consultation facilities are available in psychological and psychiatric services and other medical specialties.

Miss Patricia Thomas, Public Health Nurse, has rejoined our staff with her headquarters now at Brookfield, Colchester County.

